

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A diffuser sheet for LCD applications comprising at least one light-scattering polymethyl methacrylate layer having a thickness in the range from 2 to 5 mm and an average surface roughness R_z in the range from 5 to 50 μm , wherein the polymethyl methacrylate layer ~~which~~ comprises a polymethyl methacrylate matrix and also from 0.5 to 59.5% by weight, based on the weight of the light-scattering polymethyl methacrylate layer, of spherical scattering particles (A) whose median size V_{50} is in the range from 0.1 to 40 μm , and whose refractive index differs from that of the polymethyl methacrylate matrix by a value in the range from 0.02 to 0.2, and from 0.5 to 59.5% by weight, based on the weight of the light-scattering polymethyl methacrylate layer, of spherical particles (B) whose median size V_{50} is in the range from 10 to 150 μm and whose refractive index differs from that of the polymethyl methacrylate matrix by a value in the range from 0 to 0.2, where the total concentration of the spherical scattering particles (A) and particles (B) is in the range from 1 to 60% by weight, based on the weight of the light-scattering polymethyl methacrylate layer; ~~and the spherical scattering particles (A) and spherical particles (B) have a different~~

wherein the median particle size V_{50} of the spherical particles (B) is greater by at least 5 μm than the median particle size V_{50} of the spherical scattering particles (A), where wherein the transmittance of the diffuser sheet is in the range from 20 to 70% and its scattering power is greater than 0.3, and wherein the ratio of the square of average surface roughness of the polymethyl methacrylate layer R_z to the third power of the size of the spherical particles (B) R_z^2/D_{PB}^3 is in the range from 0.0002 to 0.1300 μm^{-1} .

Claim 2 (Previously Presented): The diffuser sheet according to Claim 1, wherein the ratio of the square of average surface roughness of the polymethyl methacrylate layer R_Z to the third power of the size of the spherical particles (B) R_Z^2/D_{PB}^3 is in the range from 0.0009 to $0.0900 \mu\text{m}^{-1}$.

Claim 3 (Previously Presented): The diffuser sheet according to Claim 1, wherein the ratio of concentration of the particles (B) c_{PB} to the thickness of the light-scattering polymethyl methacrylate layer d_S c_{PB}/d_S is greater than or equal to 2.5% by weight/mm.

Claim 4 (Previously Presented): The diffuser sheet according to Claim 1, wherein the gloss R_{85° of the light-scattering polymethyl methacrylate layer is smaller than or equal to 40.

Claim 5 (Previously Presented): The diffuser sheet according to Claim 1, wherein the ratio $c_{PA} * d_S/D_{PA}^3$ is in the range from 0.0025 to 0.3% by weight*mm/ μm^2 .

Claim 6 (Previously Presented): The diffuser sheet according to Claim 1, wherein the ratio $c_{PB} * d_S/D_{PB}^3$ is in the range from 0.00005 to 0.02% by weight*mm/ μm^2 .

Claim 7 (Canceled).

Claim 8 (Previously Presented): The diffuser sheet according to Claim 1, wherein the spherical particles (B) comprise crosslinked polystyrene, polysilicone and/or crosslinked poly(meth)acrylates.

Claim 9 (Previously Presented): The diffuser sheet according to Claim 1, wherein the scattering particles (A) comprise BaSO₄.

Claim 10 (Previously Presented): The diffuser sheet according to Claim 1, wherein the matrix of the light-scattering polymethyl methacrylate layer has a refractive index in the range from 1.46 to 1.54, measured for the sodium D line (589 nm) and at 20°C.

Claim 11 (Previously Presented): The diffuser sheet according to Claim 1, wherein the average surface roughness R_Z of the sheet is in the range from 6 to 30 μm.

Claim 12 (Currently Amended): The diffuser sheet according to Claim 1, wherein the median size V₅₀ of the spherical particle (B) is greater by at least ~~5~~ 10 μm than the median size of the scattering particles (A).

Claim 13 (Previously Presented): The diffuser sheet according to Claim 1, wherein the median size V₅₀ of the spherical scattering particles (A) is in the range from 2 to 15 μm.

Claim 14 (Previously Presented): The diffuser sheet according to Claim 1, wherein the median size V₅₀ of the spherical particles (B) is in the range from 15 to 70 μm.

Claim 15 (Previously Presented): The diffuser sheet according to Claim 1, wherein scratches produced on the sheet using a force of at most 0.7 N are not visually detectable.

Claim 16 (Previously Presented): The diffuser sheet according to Claim 1, wherein the long-term service temperature of the sheet is at least 60°C.

Claim 17 (Previously Presented): The diffuser sheet according to Claim 1, wherein the modulus of elasticity of the sheet is at least 2000 MPa.

Claim 18 (Previously Presented): The diffuser sheet according to Claim 1, wherein the longitudinal expansion of the sheet due to heating by at least 20°C is at most 5%.

Claim 19 (Previously Presented): The diffuser sheet according to Claim 1, wherein the weathering resistance of the sheet to DIN 53 387 is at least 5000 hours.

Claim 20 (Previously Presented): The diffuser sheet according to Claim 1, wherein the transmittance of the sheet is in the range from 40 to 65%.

Claim 21 (Previously Presented): The diffuser sheet according to Claim 1, wherein the yellowness index of the sheet is smaller than or equal to 12.

Claim 22 (Previously Presented): The diffuser sheet according to Claim 1, wherein the halved-intensity angle of the sheet is greater than or equal to 15°.

Claim 23 (Previously Presented): The diffuser sheet according to Claim 1, wherein the scattering power of the sheet is greater than or equal to 0.45.

Claim 24 (Previously Presented): A process for producing a diffuser sheet Claim 1, comprising extruding a moulding composition comprising polymethyl methacrylate, spherical scattering particles (A) and spherical particles (B) to form the diffuser sheet.

Claims 25-26 (Canceled).

Claim 27 (Previously Presented): An optical device comprising the diffuser sheet according to Claim 1.

Claim 28 (Previously Presented): A rear-projection screen comprising the diffuser sheet according to Claim 1.

Claim 29 (New): The diffuser sheet for LCD applications of Claim 1 comprising at least one light-scattering polymethyl methacrylate layer having an average surface roughness R_z in the range from 5 to 25 μm .

Claim 30 (New): The diffuser sheet for LCD applications of Claim 1 comprising at least one light-scattering polymethyl methacrylate layer having an average surface roughness R_z in the range from 6 to 35 μm .